

## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method, comprising:  
preprocessing a video image from a video camera to separate one or more objects to be tracked from the rest of the video image and compute statistics for the one or more objects to be tracked and the rest of the video image, wherein said preprocessing includes  
computing color statistics for said one or more objects to be tracked,  
removing said one or more objects to be tracked from a background of the  
video image, wherein said removing includes  
selecting one object of the one or more objects to be tracked,  
selecting a pixel within the selected object,  
identifying the selected pixel as a pixel belonging to the  
selected object if the difference between hue of the  
pixel and mean hue of the selected object is within an  
allowable range for hue, the difference between  
saturation of the pixel and mean saturation of the  
selected object is within an allowable range for  
saturation, and the horizontal and vertical distances of  
the pixel from the center of the selected object are  
within an allowable range for distance, and  
identifying a pixel as belonging to the background of the video  
image if the difference between hue of the pixel and the  
mean hue of the selected object is not within said  
allowable range for hue, the difference between

saturation of the pixel and the mean saturation of the  
object selected is not within said allowable range for  
saturation, and the horizontal and vertical distances of  
the pixel from the center of the selected object are not  
within said allowable range for distance, and  
computing color statistics for said background of the video image;  
generating a quality measure based on the statistics for the one or more objects to be tracked  
and the rest of the video image that indicates the suitability of the video image for use  
by an object tracking system; and  
tuning said video camera to increase said quality measure beyond a threshold.

2. (Cancelled)
3. (Currently Amended) The method of claim 2, 1, wherein said computing color statistics for said one or more objects to be tracked comprises:  
identifying the objects to be tracked; and  
calculating mean and variance values for the hue and saturation of the one or more objects to be tracked.
4. (Original) The method of claim 3, wherein said identifying comprises aligning the at least one or more objects to be tracked with one or more rectangles projected onto the video image.
5. (Cancelled)

6. (Currently Amended) The method of claim ~~5~~, 1, wherein said allowable range for hue is ten times the square root of hue variance.
7. (Currently Amended) The method of claim ~~5~~, 1, wherein said allowable range for saturation is ten times the square root of saturation variance.
8. (Currently Amended) The method of claim ~~5~~, 1, wherein said allowable range for distance is ten percent of the maximum width or height.
9. (Currently Amended) The method of claim ~~2~~, 1, wherein said computing color statistics for said background of the video image comprises:  
calculating a mean value for hue of the background; and  
calculating a mean value for saturation of the background.
10. (Original) The method of claim 1, wherein said generating a quality measure comprises:  
maximizing the saturation of each of the one or more objects to be tracked;  
minimizing the saturation of the background of the video image;  
maximizing the hue difference between the one or more objects to be tracked; and  
maximizing the average hue difference between the one or more objects to be tracked and the  
background of the video image.
11. (Currently Amended) A system, comprising:  
a storage device having stored therein one or more routines for determining the suitability of  
a video image for use by an object tracking system; and

a processor coupled to the storage device that when executing the one or more routines[[:]] preprocesses a video image from a video camera to separate one or more objects to be tracked from the rest of the video image and compute statistics for the one or more objects to be tracked and the rest of the video image, wherein preprocessing includes computing color statistics for said one or more objects to be tracked,  
removing said one or more objects to be tracked from a background of the video image, wherein removing includes  
selecting one object of the one or more objects to be tracked,  
selecting a pixel within the selected object,  
identifying the selected pixel as a pixel belonging to the selected object if the  
difference between hue of the pixel and mean hue of the selected  
object is within an allowable range for hue, the difference between  
saturation of the pixel and mean saturation of the selected object is  
within an allowable range for saturation, and the horizontal and  
vertical distances of the pixel from the center of the selected object are  
within an allowable range for distance, and  
identifying a pixel as belonging to the background of the video image if the  
difference between hue of the pixel and the mean hue of the selected  
object is not within said allowable range for hue, the difference  
between saturation of the pixel and the mean saturation of the object  
selected is not within said allowable range for saturation, and the  
horizontal and vertical distances of the pixel from the center of the  
selected object are not within said allowable range for distance, and  
computing color statistics for said background of the video image;

generates a quality measure based on the statistics for the one or more objects to be tracked  
and the rest of the video image that indicates the suitability of the video image for use  
by an object tracking system; and  
tunes said video camera to increase said quality measure beyond a threshold.

12. (Original)

13. (Currently Amended) The system of claim ~~12~~, 11, wherein said computing color statistics for  
said one or more objects to be tracked comprises:  
identifying the objects to be tracked; and  
calculating mean and variance values for the hue and saturation of the one or more objects to  
be tracked.

14. (Original) The system of claim 13, wherein said identifying comprises aligning the at least  
one or more objects to be tracked with one or more rectangles projected onto the video  
image.

15. (Cancelled)

16. (Currently Amended) The system of claim ~~15~~, 11, wherein said allowable range for hue is ten  
times the square root of hue variance.

17. (Currently Amended) The system of claim ~~15~~, 11, wherein said allowable range for  
saturation is ten times the square root of saturation variance.

18. (Currently Amended) The system of claim ~~15~~, 11, wherein said allowable range for distance  
is ten percent of the maximum width or height.

19. (Currently Amended) The system of claim ~~12~~, 11, wherein said computing color statistics for said background of the video image comprises:
- calculating a mean value for hue of the background; and
  - calculating a mean value for saturation of the background.
20. (Original) The system of claim 11, wherein said generating a quality measure comprises:
- maximizing the saturation of each of the one or more objects to be tracked;
  - minimizing the saturation of the background of the video image;
  - maximizing the hue difference between the one or more objects to be tracked; and
  - maximizing the average hue difference between the one or more objects to be tracked and the background of the video image.

21. (Currently Amended) A machine-readable medium having stored thereon data representing ~~sequences-sets~~ of instructions, ~~said sequences of instructions~~ which, when executed by a ~~processor machine~~, cause said ~~processor machine~~ to:
- preprocess a video image from a video camera to separate one or more objects to be tracked from the rest of the video image and compute statistics for the one or more objects to be tracked and the rest of the video image, wherein processing includes  
computing color statistics for said one or more objects to be tracked,  
removing said one or more objects to be tracked from a background of the video  
image, wherein removing includes  
selecting one object of the one or more objects to be tracked,  
selecting a pixel within the selected object,  
identifying the selected pixel as a pixel belonging to the selected object if the  
difference between hue of the pixel and mean hue of the selected  
object is within an allowable range for hue, the difference between  
saturation of the pixel and mean saturation of the selected object is  
within an allowable range for saturation, and the horizontal and  
vertical distances of the pixel from the center of the selected object are  
within an allowable range for distance, and  
identifying a pixel as belonging to the background of the video image if the  
difference between hue of the pixel and the mean hue of the selected object is  
not within said allowable range for hue, the difference between saturation of  
the pixel and the mean saturation of the object selected is not within said  
allowable range for saturation, and the horizontal and vertical distances of the

pixel from the center of the selected object are not within said allowable range  
for distance, and  
computing color statistics for said background of the video image;  
generate a quality measure based on the statistics for the one or more objects to be tracked  
and the rest of the video image that indicates the suitability of the video image for use  
by an object tracking system; and  
tune said video camera to increase said quality measure beyond a threshold.

22. (Cancelled)



23. (Currently Amended) The machine-readable medium of claim ~~22~~, 21, wherein said computing color statistics for said one or more objects to be tracked comprises:
- identifying the objects to be tracked; and
- calculating mean and variance values for the hue and saturation of the one or more objects to be tracked.
24. (Original) The machine-readable medium of claim 23, wherein said identifying comprises aligning the at least one or more objects to be tracked with one or more rectangles projected onto the video image.
25. (Cancelled)
26. (Currently Amended) The machine-readable medium of claim ~~25~~, 21, wherein said allowable range for hue is ten times the square root of hue variance.
27. (Currently Amended) The machine-readable medium of claim ~~25~~, 21, wherein said allowable range for saturation is ten times the square root of saturation variance.
28. (Currently Amended) The machine-readable medium of claim ~~25~~, 21, wherein said allowable range for distance is ten percent of the maximum width or height.

29. (Currently Amended) The machine-readable medium of claim ~~22~~, 21, wherein said computing color statistics for said background of the video image comprises: calculating a mean value for hue of the background; and calculating a mean value for saturation of the background.
30. (Original) The machine-readable medium of claim 21, wherein said generating a quality measure comprises: maximizing the saturation of each of the one or more objects to be tracked; minimizing the saturation of the background of the video image; maximizing the hue difference between the one or more objects to be tracked; and maximizing the average hue difference between the one or more objects to be tracked and the background of the video image.